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Hurdles Remain for Nuclear Testing Treaties

The Senate Foreign Relations Committee will attempt to mark up a resolution of approval of two nuclear testing treaties this morning, but the effort may not succeed because of an ongoing controversy over verification.

The two U.S.-Soviet pacts would limit the size of underground nuclear tests.

Senate Democrats remain unable to agree on what should be included in the resolution.

President Reagan has asked the Senate to link approval of the two pacts with the negotiation of an additional U.S.-Soviet agreement requiring a new, tougher method of verifying compliance with the nuclear testing limits.

Approval of the treaties requires a two-thirds majority, under the Constitution. Reagan proposed that the Senate, in voting for the two pacts, add a proviso that neither treaty would be ratified officially until the Senate also had approved the new verification agreement.

According to several sources, Senate Majority Leader Robert C. Byrd, D-W.Va., and Senate Armed Services Committee Chairman Sam Nunn, D-Ga., are determined that the Democrats' position on treaty verification be just as tough-minded as Reagan's.

On the other hand, liberals, led by Foreign Relations panel member John Kerry, D-Mass., oppose any action that would endorse Reagan's claim that the treaties cannot be verified in their current form.

The bottom-line demand of liberal arms control advocates is that the Senate not tie the hands of a future president, who might support the treaties without insisting on the particular verification methods Reagan is seeking.

Treaty supporters face an additional obstacle: GOP conservatives who oppose the two treaties altogether. Sen. Jesse Helms, N.C., the Foreign Relations panel's senior Republican, has announced that he will try to link Senate action on the nuclear testing treaties with approval of the unratified, 1979 U.S.-Soviet strategic arms limitation treaty (SALT II), which Helms also opposes. Helms' stratagem assumes that the treaties' combined political liabilities would doom the whole package.

The treaties at issue were negotiated in the mid-1970s, but never ratified: one in 1974 limiting underground tests of nuclear weapons, the other in 1976 controlling underground nuclear explosions conducted for peaceful purposes.

What the Treaties Would Do.

The two U.S.-Soviet nuclear treaties at issue in the Senate would put into law a limitation on the size of underground nuclear explosions. The pacts would bar underground blasts with an explosive force greater than 150 kilotons (that is, 150,000 tons of TNT).

By contrast, the atomic bomb dropped on Hiroshima, Japan, in 1945 had a force (or "yield") of about 14 kilotons. Warheads deployed on modern U.S. strategic missiles have yields ranging from 40 kilotons to 1,000 kilotons (one megaton).

Existing treaties bar U.S. and Soviet nuclear test explosions in the atmosphere, under the oceans or in outer space. President Reagan now wants the Senate to approve conditionally the two pacts aimed at curbing underground blasts.

Both countries claim to have observed the 150-kiloton limit since the treaties were signed in the mid-1970s, though neither has been ratified. The administration contends that the Soviet Union "probably" has violated the limit. Outside experts citing seismological evidence — the kind of measurements of earth tremors that are used to study earthquakes — insist that the Soviets have complied with the 150-kiloton ceiling.

Threshold Test Ban Treaty. The "threshold" test ban treaty, signed July 3, 1974, would ban underground tests of nuclear weapons with a yield greater than 150 kilotons.

To assist in verifying compliance, an appendix (or "protocol") commits each country to give the other certain data:

- The location of its nuclear testing sites.
- Geological features of each test site that might affect the transmission of shock waves from an explosion to distant seismic monitoring equipment of the other country, including, for instance, the kind of bedrock and the depth of the water table.
- The explosive yield of two nuclear explosions in each geologically distinct test site, to allow the other country to calibrate its seismic measuring equipment. The treaty provides for no independent verification of the size of these demonstration explosions.
- The location of each nuclear test within each site.

Because of inherent uncertainties in measuring the yield of a nuclear blast, the negotiators agreed that occasional, slight and inadvertent violations

of the 150-kiloton threshold would not constitute a violation.

The treaty provides that either party may withdraw from the pact on six months' notice.

Peaceful Nuclear Explosions Treaty. The second treaty, signed May 28, 1976, addresses underground nuclear explosions for peaceful purposes, such as moving vast amounts of earth to build a canal. This pact bans underground blasts with a yield of greater than 150 kilotons, and also forbids groups of simultaneous explosions with an aggregate yield of greater than 1.5 megatons.

U.S. interest in such projects waned before any such blasts were conducted. However, the Reagan administration says the Soviets have conducted more than 50 peaceful nuclear explosions since this treaty was signed.

Like the threshold treaty, this pact also contains a verification protocol, but this one is some 6,000 words long. It provides that, for any allowable peaceful explosion, either party will provide the other with prior notification of the purpose, location and yield of the blast, the relevant geological data on the site, and a description of any technical features of the project that might affect distant seismic measurements of the explosive yield.

Under certain conditions, the protocol gives either party the right of on-site inspection of explosions conducted by the other:

- For groups of explosions with an aggregate yield greater than 150 kilotons, the other country may measure the yield of each blast by electrical equipment directly measuring its shock wave. The CORTEX technique, which the administration now wants to apply to every Soviet weapons test of greater than 75 kilotons yield, is a more recent version of the system that negotiators had in mind for this provision of the 1976 treaty.

- For multiple explosions with an aggregate yield greater than 500 kilotons, the other country also may place a network of seismometers in the vicinity.

The protocol also contains elaborate provisos for allowing the country conducting the explosion to inspect monitoring equipment brought in by the other country.

This treaty may be terminated on six months' notice, provided that the threshold test ban treaty also is terminated.

By Pat Towell